



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/777,828 | 02/07/2001 | Chui-Kuei Chiu | MR2863-12 | 8307 |

4586 7590 05/29/2003

ROSENBERG, KLEIN & LEE
3458 ELLICOTT CENTER DRIVE-SUITE 101
ELLICOTT CITY, MD 21043

| |
|----------|
| EXAMINER |
|----------|

EDWARDS JR, TIMOTHY

| | |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
|----------|--------------|

2635

DATE MAILED: 05/29/2003

2

Please find below and/or attached an Office communication concerning this application or proceeding.

M

Office Action Summary

Application No.

09/777,828

Applicant(s)

CHIU ET AL.

Examiner

Timothy Edwards

Art Unit

2635

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 February 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6 is/are rejected.
- 7) ☒ Claim(s) 5 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

Drawings have been approved by draftsman.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1,3,4,6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Charlier [US 5,153,590] and, further in view of Danish et al [US 4,567,469].

Considering claim 1, Charlier disclose a keypad apparatus comprising, a) a plurality of keys, each key provided with an electrically conductive element (see col 3, lines 19-23 and fig 2); b) a plurality of key switch output lines (see col 3, lines 2-10 and fig 2, items 215 and 217); c) a first wire set (see fig 2, item 219), a second wire set (see fig 2, items 215 and 217); d) second wire set connected to a key switch signal output line to a predetermined bit encoding mode (see col 2, lines 56-68 and fig 2, items 201 and 203); e) depression of keys contact first and second wire sets (see col 2, lines 54-57);

Charlier does not specifically recite the first wire set within a contact region comprising one end connected to a common line and an opposite end forming an open end.

Interleave type switch contacts is well known in the art. Danish teaches in col 5, lines

Art Unit: 2635

35-52 the use of a first and second set of conductors terminating in a contact area having one end connected to a common line and an opposite end forming an open end. Therefore, it would have been obvious to one of ordinary skill in the art to terminate the first conductor set of the Charlier system terminating in a contact area having one end connected to a common line and an opposite end forming an open end as taught by Danish because Charlier shows the second wire set of his system terminating in a contact area having one end connected to a common line and an opposite end forming an open end.

Considering claim 3, Charlier disclose the limitation of this claim see fig 2, item 215.

Considering claim 4, Charlier does not specifically recite the open ends of the first and second wire set is terminated into two parallel end portions. However, Charlier shows in fig 2, a second wire set forming a contact area having ends that terminates in a semi-circle. One of ordinary skill in the art would recognize the re-arrangement of the wire sets of the Charlier system would be possible without undue experimentation because Charlier shows a first and second wire set terminating in a contact area and the second wire set terminating in a semi-circle. Therefore, it would have been obvious to one of ordinary skill in the art to terminate the open ends of the first and second wire set of the Charlier system into two parallel end portions because Charlier shows the first and second wire set of his system terminating in the contact area of the switch.

Art Unit: 2635

Considering claim 6, Charlier does not specifically recite output lines are connected to a denouncing circuit. The examiner takes official notice the use of a denouncing circuit in a key switch signal recognition circuit is well known in the art.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Charlier, Danish et al, and further in view of Niot [US 5,831,556].

Considering claim 2, Charlier does not specifically recite his bit encoding mode is a BCD encoding format. However, Charlier shows bit encoding method using an A/D converts. Niot teaches in col 6, lines 17-46 and line 62 to col 7, line 14 the use of a BCD encoding format in which a particular pattern is recognize by a loop monitor and compared to a known value to determine a key activation. Therefore, it would have been obvious to one of ordinary skill in the art to use a comparing means to compare the output of a monitoring means to known digital information or value which corresponds to a key activation in the Charlier system as taught by Niot because both system as concern with the reading of digital information to indicate a switch activation.

Allowable Subject Matter

Claim 5 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: in the environment of a key switch recognition circuit the prior art of record fails to teach or suggest, the key switch signal output lines are respectively connected to a signal input end of a respective AND gate, which outputs a triggering signal through an output end when the key switch signal output line of the corresponding contact area is logically high.

1. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure is Phillips et al [US 5,534,860]. Phillips teaches cited a wire matrix keyboard system having a first and second

2. Any inquiry concerning this communication should be directed to Examiner Timothy Edwards at telephone number (703) 305-4896. The examiner can normally be reached on Monday-Thursday, 8:30 a.m.-4:00 p.m. The examiner cannot be reached on Fridays.

If attempt to reach the examinee by telephone are unsuccessful, the examiner's supervisor, Michael Horabik, can be reached on (703) 305-4704.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-4700, Mon-Fri., 8:30 a.m.-5:00 p.m.

Any response to this action should be mailed to:

Art Unit: 2635

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or fax to:

(703), 872-9314 (for formal communications intended for entry)


Or:

(for informal or draft communications, please label "PROPOSED"

or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121

Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).


Timothy Edwards
Primary Examiner
May 22, 2003